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PlantWatchPRO: *new PC-free solution from CAREL for the supervision of small-medium systems*

Systems & Products Unit

07 February 2008

1. What we have developed

PlantWatchPRO is the new PC-free solution for the supervision of small-medium systems, where the management and control requirements are the same as on larger installations.

PlantWatchPRO represents the evolution of the current PlantWatch, and is designed for installers, managers of stores/supermarkets and OEMs.

It is an innovative and compact solution, unique on the market, featuring a large colour graphic display with touchscreen function, optional internal modem, 3 relay outputs for signalling alarms, built-in buzzer and LAN connection.

PlantWatchPRO can manage up to 100 controllers connected to the serial line, either using the Modbus® or CAREL communication protocol.

PlantWatchPRO can send SMS and e-mail messages and connect to PlantVisorPRO at the remote control centre (CAREL monitoring, control and supervision system).

Other functions: scheduler, user profiling, alarm and event management, defrost management, export data (alarms, events and various reports in formats compatible

with Excel and Word) to pendrive, and import new customised instruments or applications, all with extremely simple programming.

It also features a proximity sensor that, when the user opens the transparent cover, activates the maximum brightness of the display showing the installation data.

Designed for the HVAC/R market, however the extreme configurability of PlantWatchPRO means it can also be used for applications in different markets, for the supervision of machinery-systems.

Main hardware features

The innovative features of PlantWatchPRO include:

- 5.6" touchscreen graphic display
- No keypad (the keypad is in fact a touchscreen and can be displayed whenever something needs to be typed in, letters, numbers or symbols)
- "Dash board" area with USB port and proximity sensor
- High index of protection (IP65)
- Plastic front cover to ensure IP65
- Proximity sensor.
- Management of an optional external buzzer

Main software features

- Max. number of controllers connected: 100
- Carel and Modbus protocol
- Supervision of the CPT-DIN series energy counters by Carlo Gavazzi Automation. Product info (CPT-DINAV53HS1BX - Carlo Gavazzi www.gavazzi-automation.com)
- Max. number of variables recorded: 100 analogue, for 1 year, 15 min sampling time
- Functions similar to PlantVisorPRO: scheduler, user configuration, alarm and event management
- "Guardian" function for better system reliability (automatic control of the system and signals in the event of malfunctions/errors)
- 3 relays for signalling alarms
- Export data (alarms-events-various reports) to pendrive (in Excel format)
- Export the configuration
- Import new instruments or customised applications
- Possibility of graphs with up to 5 curves
- Extended configurability of the alarms (Low-High-Critical)
- Address book for sending alarm signals: SMS, fax, email
- Management of defrosts

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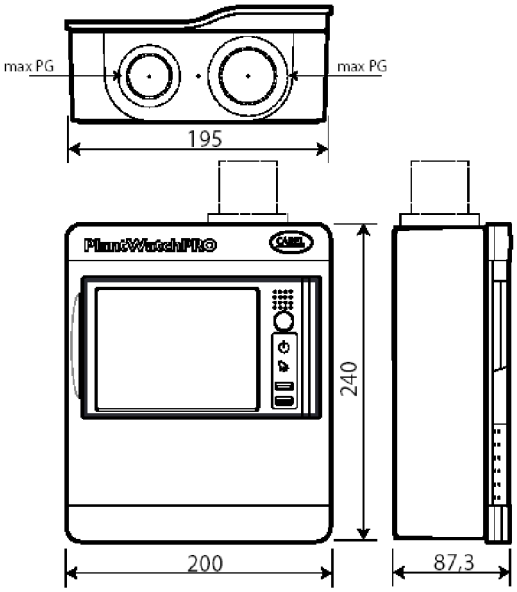
Dimensions and assembly

wall mounting



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PlantWatchPRO COMBINES
MONITORING AND SUPERVISION FUNCTIONS

MONITORING is based on the reading of values from the field and saving and using such values to generate alarms

SUPERVISION refers to the ability of a system to take decisions and interact with the instruments in the field based on the values acquired from the field and the rules defined by the system

General product overview

Product pluses

- Excellent design at an advantageous and competitive price
- Suitable for small-medium-large applications
- Linux platform compatible with PlantVisorPRO
- High efficiency 5.6” graphic display (1/4 VGA)
- Simplified programming
- Usability: user-friendly menu functions with the same icons as PlantVisorPRO
- Compatible with PlantVisorPRO remote
- Highly reliable alarm management (fax, SMS, email, signal relay, digital inputs[1])
- Pendrive for downloading and loading data or a new configuration
- Update software from pendrive

2. Range

PlantWatchPRO is available in 2 models:

- Standard version
- Version with built-in PSTN modem (allowing alarm signals to be sent to remote).

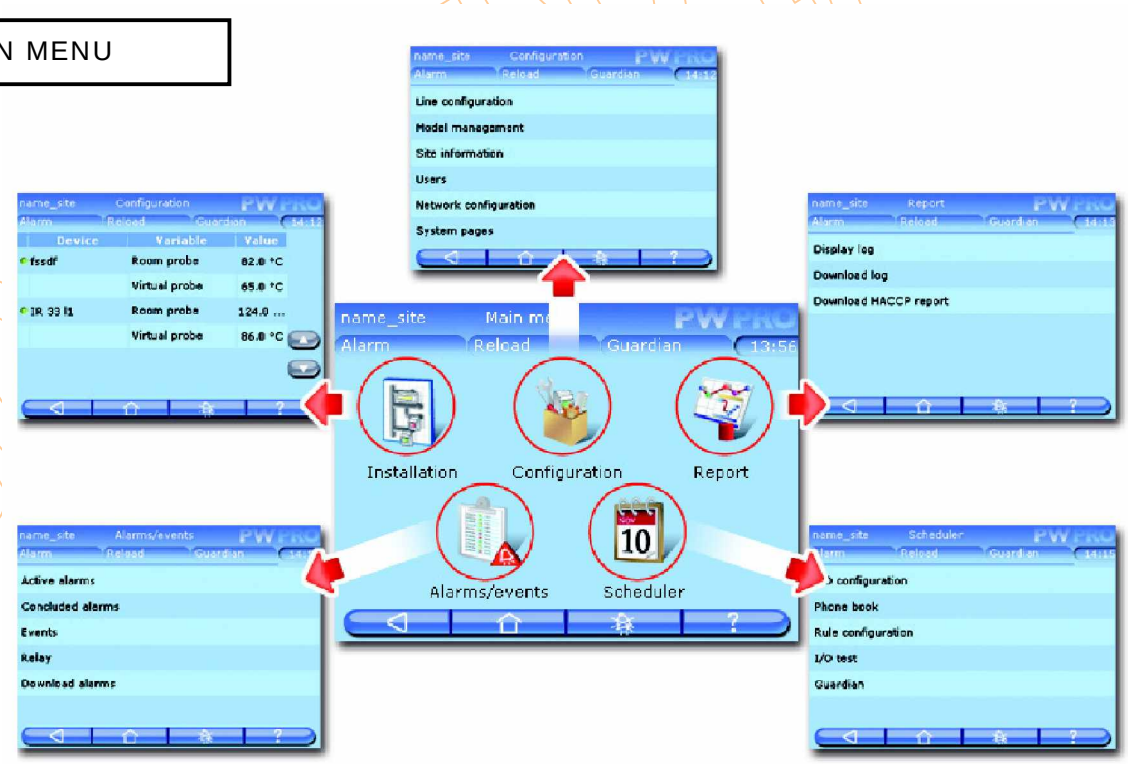
The packages of both versions include the connector kit, the user manual, 4 screws for fastening the PlantWatchPRO front panel to the rear part, the 2 faceplates.

The installer must therefore provide the screws for fastening the unit to the wall.

3. Main functions

The PlantWatchPRO opening screen is made up of a clock, navigation buttons, site information and 5 icons (installation, configuration, reports, alarms/events, scheduler) that access secondary menus.

MAIN MENU



Installation

This menu accesses the following main functions:
–display the list of all the devices in the installation and their status, using graphic LEDs:
-red: device alarm
-blue: device disabled
-grey: device off-line
–display the main variables decided
–display the parameters that can be modified
–display the active and reset parameters
–display graphs of the variables

! PLUS

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GRAPHS available on the display

Configuration

This menu accesses the following main functions:
–configuration of the line of devices and the network
–configuration of the models, that is, the alarms, the variables to be sampled
–set the information for the installation and the phone book of service contacts
–user configuration and profiling in 3 categories:
-*Administrator*: modify the settings of the administrator user.
- *Remote* User: configure the remote user.
-*Normal* user: allows the possibility to create new user identities and assign different privileges (site configuration/change parameters/alarm management).
–access to the system pages (export or restore the configuration of the site, export the data files, update software and set the clock, date/time and the display settings)

! PLUS

CUSTOM DEVICE MODELS: New models of devices can be imported from the device creator and/or copied from existing models to create new ones
EXPORT of CONFIGURATION of the site to be able to configure other similar sites (significant time savings)
Possibility to RESTORE the ORIGINAL CONFIGURATION of the site.
UPDATE SOFTWARE quickly via pendrive.
USER PROFILING with the assignment of different privileges.

Reports

This menu accesses the following menus:
–display variable log
–download variable log
–download HACCP report, via web or to pendrive
–deactivate relay

! PLUS

DOWNLOAD HACCP REPORT and LOG both via web in formats compatible with Word and Excel and to pendrive

Alarms/events

This menu accesses the following menus:
–display active alarms by priority
–display concluded alarms
–display events by categories
–download alarms in format compatible with Excel

! PLUS

DISPLAY EVENTS by categories: information, error and warning events
DISPLAY ACTIVE ALARMS by priority: red (highest); orange (high); yellow (medium); white (low)

Scheduler

This menu accesses the following menus:
–I/O configuration (configuration of alarm signals by fax, SMS, e-mail, calls to the remote service centre)
–phone book (entry of contacts for alarm signals)
–rule configuration (set of actions; time bands,...)
–I/O test
–Guardian (system control)

! PLUS

CREATION OF RULES (set of actions, time bands, delay settings)
I/O TEST (check the correct operation of the I/Os)
GUARDIAN (control the system e.g. check that the alarm is managed within the set time)

All the functions are described in the user manual.
For the MAP OF THE FUNCTIONS see quick guide +040000021 pages 46-47

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4. Navigation via web from remote PC

PlantWatchPRO installed in any location can be monitored via an internet connection, as long as it is connected to the telephone line and the PC being used is fitted with a modem.

This function can be used to display on the PC's screen the exact same data that appears on the PlantWatchPRO touchscreen display and access almost all the PlantWatchPRO functions.

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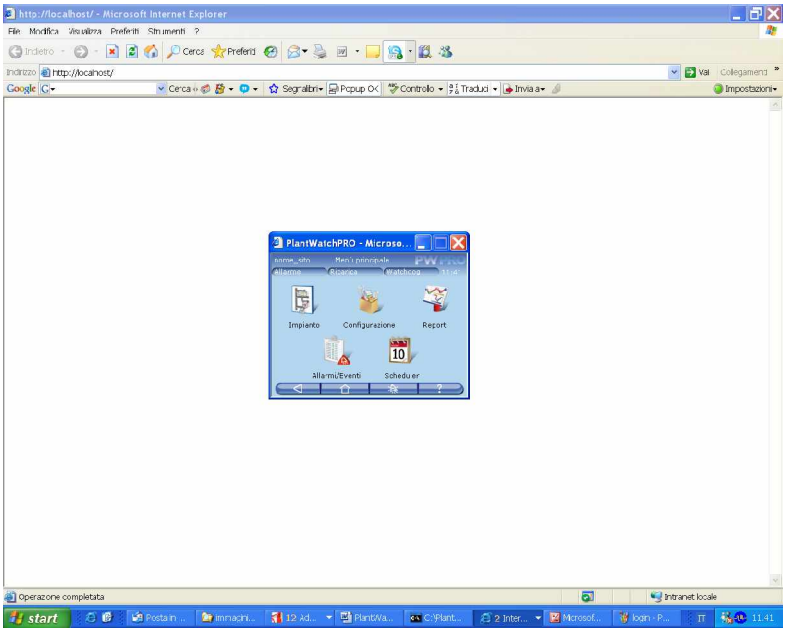
How to connect to PlantWatchPRO from a remote PC via the web

Once at the PC, in Microsoft Windows (any version), from the Control panel create a new Internet connection, as follows:

- access CONTROL PANEL - NETWORK CONNECTIONS;
- from here choose CREATE A NEW CONNECTION - CONNECT TO THE INTERNET - SET UP MY CONNECTION MANUALLY - CONNECT USING A DIAL-UP MODEM;
- enter the name of the connection;
- enter the telephone number of the telephone line that PlantWatchPRO which is connected to;
- choose from the options that allow the connection to be available to all users or only this specific user;
- enter "PVRemote" as the USER NAME and "PD35010" as the PASSWORD;
- The connection has been created; now open a web browser (for example Internet Explorer or Mozilla Firefox) and enter following IP address: 192.1.1.2;
- The window of the browser will automatically show the PlantWatchPRO screen, allowing access in the same way as for the touchscreen version.

For example, the variable log or the HACCP report can be downloaded, or the original configuration of the site restored.



5. Customisation

Customised devices can be created using the PlantVisorPRO IDE development software.

See the attachment "Using PlantVisorPRO IDE to create new PlantWatchPRO models"

6. Instruments supported

Currently the following controllers are supported by PWPRO:

- MPXPRO
- IRMPX
- pCOrack controller
- µRack
- ir33 family (ir33-powercompact-Mtcd2)
- I/OM.

All new models can be generated using PlantVisorPRO IDE.

New models of products for refrigeration or AC applications will be available and downloadable from KSA, no password required: "guest" area, ref. PlantwatchPRO.

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7. Markets and applications

PlantWatchPRO is the ideal solution for compact systems where the management and control requirements are the same as in large installations

PlantWatchPRO is aimed at installers, managers, OEMs.

The reference market is HVAC/R, however the extreme configurability of the product means it can also be used for applications in different markets, for the supervision of machinery-systems. PlantWatchPRO is also the ideal solution for retrofits.

Specifically, PlantWatchPRO has the following applications:

RETAIL MARKET - DATALOGGING

small – medium installations such as supermarkets, discount stores, local shops, service areas that can be controlled also from remote

AIR-CONDITIONING MARKET

control of units in service period, control of air handling units , chillers-heat pumps, with the possibility to send data to a remote service and supervision centre via modem or served by Ethernet network

STAND ALONE INSTALLATIONS

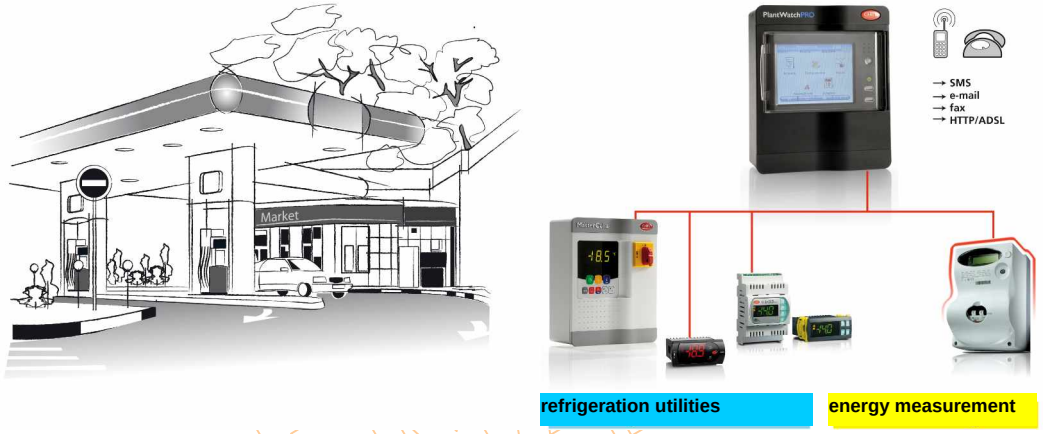
for alarm management and data logging

Motorway service areas, small stores (discount stores, local shops)

–complete management of the alarms on the refrigeration utilities

–alarm signals to the service network via SMS using the optional GSM modem. Signals also possible by email, fax.

–data logging and HACCP report management (export data saved to pendrive)

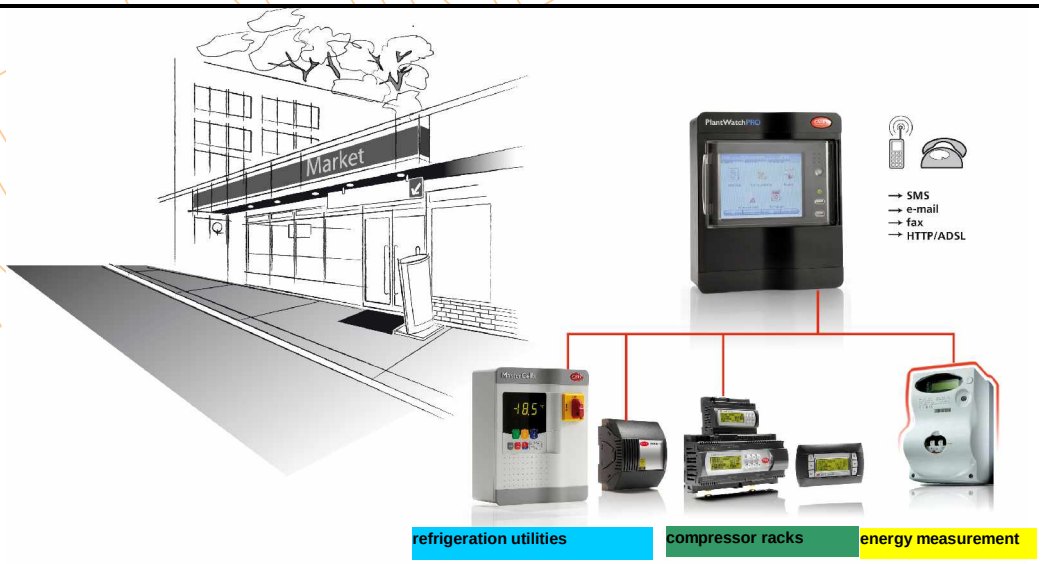


Small supermarkets

–monitoring and supervision of all the utilities, both air-conditioning and refrigeration (showcases, compressor racks, ...)

–alarm signals to the service network via SMS using the optional GSM modem. Signals also possible by email, fax.

–data logging and HACCP report management (export data saved to pendrive)



PlantWatchPRO is a flexible product, having been developed considering the different needs of the market and the users.

Need	Market
"Front end" solution for small-medium stores where a PC-based solution is not required	Retail
Control solution for chillers, HP, AHU	AC
Replacement of current PlantWatch range	Refr.-AC
Web-oriented solution that exploits the latest technology and offers extensive high connectivity	Refr-AC
Offer a very reliable solution that can connect to a remote system for transferring alarms and system data. Fundamental for service	Refr-AC

provision.	
Offer a solution that conforms to the HACCP standards for logging critical data, such as showcase temperature.	Refr-Retail

User category	Need	Benefits	Key features	Success factors
REFR installer	*Solutions for installation-maintenance management.*	*PC-FREE, low cost solution – easy to use*	*Simple installation., Simple documents*	*IP65 box, easy to install and configure.*
AC installer	*Unit maintenance in the warranty period.*	*PC-FREE, low cost solution*	*Simple and complete in terms of connectivity*	*Easily configured*
Typical user: manager of the sales point	*Requires just one simple and immediate instrument to signal faults, acquire data for HACCP*	*Centralisation of alarms, user simplicity. Data saved according to standards. Data portability.*	*Easy to use. Immediate*	*Immediate and easy to use*
OEM	*Solutions for installation-maintenance management.*	*Economical solution for maintenance operations*	*Low price*	*Extremely reliable, can replace a PC in small systems.*

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6. List prices, accessories and availability

Code	Description	List price in euro
PWPRO00000	PlantWatchPRO standard model	980.00
PWPROM0000	PlantWatchPRO model with internal modem	1100.00
PLW0PGSM00	900/1800 GSM dual band modem kit with cables, antenna and 230 Vac power supply	718.00
PWOPMD0000	PlantWatchPRO adapter kit for GSM modem	36.00

PlantWatchPRO is already available in stock for samples to principal customers. Mass production is expected to start in March 2008.